EFFECTS OF YOGIC INTERVENTIONS ON THE SELECTED PSYCHOLOGICAL AND PHYSIOLOGICAL VARIABLES AMONG BEGINNER HOCKEY PLAYERS

SHORT SYNOPSIS

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It is a Bonafide record of original work carried out under the supervision of Dr. Pramod Kumar Das and has not been submitted in full or part to any other university or institute for a degree or diploma.

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ABSTRACT

The intention of this study is to investigate how yoga interventions affect specific psychological and physiological factors in beginner hockey players. Investigating non-invasive, affordable methods like yoga that can improve mental and physical performance is urgently needed given the growing significance of holistic development in sports. 90 beginner hockey players from the Gwalior district participated in this study's pre-test–post-test experimental design. They were split equally into four groups: (1) Asanas-only, (2) Pranayama-only, (3) Combined Asanas and Pranayama, and (4) a Control group that did not receive any intervention. Over the course of the eight-week intervention program, structured yoga practices will be implemented.

The dependent variables include psychological components such as mental preparation, anxiety and worry management, concentration ability, and relaxation ability, along with physiological measures such as resting pulse rate, resting blood pressure, maximum breath-hold time, and cardiovascular efficiency. These variables were chosen based on a review of existing literature, which indicates that yoga practices significantly influence both psychological well-being and physical health, especially in sports settings. Data will be collected through standardized tests, and statistical analyses—including Kolmogorov-Smirnov test, descriptive statistics, and ANCOVA.

It is expected that all three experimental groups will show significant improvements compared to the control group, with the combined group demonstrating the most comprehensive benefits. The study aims to provide evidence-based support for incorporating yogic practices into training programs for beginner athletes, thereby promoting their mental stability, physical fitness, and overall performance potential in hockey.

Keywords: Psychological Variables, Physiological Variables, Beginner Hockey Players, Mental Skills, Cardiovascular Efficiency, Sports Psychology.

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1. INTRODUCTION

The significance of integrating holistic health practices into sports training has gained increasing attention in recent years. With the growing demands placed on athletes, especially at competitive levels, there is a pressing need to support both physical endurance and psychological well-being. This is particularly true for beginner hockey players, who are in the critical phase of developing sport-specific skills, adapting to intense physical training, and coping with psychological stressors such as performance pressure, anxiety, and self-doubt. As hockey is a high-speed, physically demanding, and contact-based sport, players are often required to exhibit not only muscular strength and endurance but also quick reflexes, mental resilience, and controlled emotional responses (Singh & Yadav, 2020).

In this context, yogic practices—particularly asanas (physical postures) and pranayama (breath regulation techniques)—can offer a well-rounded and effective method for improving both psychological and physiological performance parameters.

Yoga, rooted in Indian philosophy and culture, emphasizes the unity of body, mind, and breath. It is increasingly being recognized as a complementary approach to enhance athletic performance by promoting muscular flexibility, postural control, respiratory efficiency, mental clarity, emotional balance, and stress resilience (Telles et al., 2012).

According to Sengupta (2012), regular yoga practice influences the autonomic nervous system, improving parasympathetic activity and reducing the dominance of stress-inducing sympathetic responses. These benefits are essential for athletes, particularly beginners, who face the dual challenges of physiological adaptation and psychological adjustment.

Scientific literature supports the idea that specific yogic practices can significantly enhance performance-related variables. For instance, Madanmohan et al. (2004) found that yoga training improved pulmonary function and reduced heart rate in physically active individuals. Similarly, Sharma and Haider (2015) reported that pranayama practices were effective in reducing anxiety and improving concentration levels in young athletes. Incorporating yoga into athletic training programs is not only cost-effective and non-invasive but also scalable and safe

for beginners.

In this study, a carefully structured yogic intervention has been designed, which combines six asanas and six pranayamas, selected for their relevance to the needs of beginner-level hockey players. The chosen asanas include Surya Namaskar, Vrikshasana, Tadasana, Matsyasana, Dhanurasana, and Bhujangasana. These postures were selected based on their reported benefits for improving musculoskeletal coordination, spinal flexibility, cardiovascular activation, and postural stability (Sinha et al., 2013; Khalsa et al., 2009). For example, Surya Namaskar activates all major muscle groups and increases cardiovascular endurance, while Vrikshasana improves balance and concentration. Matsyasana and Bhujangasana support thoracic expansion and lung function, essential for aerobic performance and recovery.

The pranayama techniques incorporated in this study include Nadi Shodhana, Bhramari, Anulom Vilom, Kapalbhati, Sheetali, and Sheetkari. These practices have demonstrated significant effects on regulating respiratory patterns, reducing stress hormones, and enhancing mental clarity (Muralikrishnan et al., 2012).

For instance, Nadi Shodhana helps balance the autonomic nervous system and calm the mind, while Bhramari promotes relaxation and reduces mental fatigue. Kapalbhati is known for improving respiratory strength and aiding in the removal of toxins. Sheetali and Sheetkari, which involve cooling breath techniques, help reduce internal body temperature and calm the nervous system—both valuable in high-intensity sports like hockey.

Despite the well-documented benefits of yoga, its application in structured sports training—especially for beginner hockey players—remains underexplored. Existing research has largely focused on general fitness populations or elite athletes in individual sports, leaving a gap in understanding its impact on team sports and beginner-level players. This study seeks to bridge that gap by investigating the effects of a combined asana and pranayama regimen on selected psychological variables—including mental preperation, anxiety and worry management, concentration ability, and relaxation ability—and physiological variables, such as resting pulse rate, resting blood pressure, maximum breath-hold time, and cardiovascular efficiency.

The study aims to provide empirical evidence supporting the incorporation of yogic interventions into regular sports training. This aligns with the broader goals of physical education and sports science, which now advocate for multidimensional approaches to athlete development. If proven effective, such interventions can serve as valuable tools not only for performance enhancement but also for injury prevention, stress management, and long-term athlete sustainability.

2. LITERATURE REVIEW

Wali, S. 2020, In this study, the researcher examines how certain motor skills, psychological traits, and physiological characteristics of hockey players are affected by yoga practice and athletic training. wherein 90 female students were randomly chosen from the Karnataka district of Bagalakot. The sample's ages ranged from 14 to 16. The intervention lasted for sixteen weeks. The researcher imposed some restrictions, such as subject-related experience, weather, and atmosphere. The limits were thought to be related to lifestyle, dietary choices, and relaxation intervals. Three groups were created for this study: the first group received a yoga intervention, the second group received plyometric training, and the third group served as the control group. The purpose of this is to see how the independent variable affects the dependent variable. The study's duration was progressively extended. Following the training, a pre-test was administered, data was gathered, and sixteen weeks of yoga and sports training were finished. Following the comparison, the researcher discovered notable improvements in motor skills as well as physiological and psychological factors. The statistical method employed was ANCOVA, with a confidence level of 0.05.

Narayanakumar.p 2008, In this study, the researcher aimed to assess the impact of yoga and physical exercise on the motor abilities and physiological variables of 90 male hockey players, aged 16 to 19 years, using random sampling. The players were divided into three groups, each consisting of 30 participants: one group received a physical exercise program, the second group underwent a yoga intervention, and the third group served as the control group. The training program lasted 12 weeks, with sessions lasting 45-60 minutes, including warm-up and cool-down exercises. After the experimental period, the results were analyzed using a dependent t-test, ANCOVA, and Scheffe's post-hoc test to determine significant differences

between the groups, with a significance level set at 0.05. The study concluded that yoga training was more effective than physical exercise in improving various health parameters, including cardiorespiratory endurance, flexibility, agility, resting pulse rate, anaerobic power, and respiratory rate.

Das, payel, 2021

By enhancing psychological and physiological processes, many passive meditation techniques are utilized to improve sports performance. The effects of these approaches have been compared among athletes in terms of treatment duration and duration. Investigating the relative effects of several meditation techniques on physiological and psychological variables in relation to training duration was the aim of the study. It was predicted that among female athletes, the chosen physiological and psychological factors would be significantly impacted by time and various meditation approaches.

Dubey, R.P 2021, This study aimed to examine the impact of yogic techniques on selected psychological and physiological variables among under-17 players from Bulandshahr, Uttar Pradesh, with a sample size of 90 participants. The researcher focused on five psychological and seven physiological variables. The participants were divided into four groups, consisting of two experimental groups and two control groups. A single-group design was used, with sessions held three times a week for 2 hours each, over an 8-week period. To assess the effects on the selected variables, paired Z-tests and mean comparisons were conducted at a 0.05 significance level. The relationship between pre- and post-test results was analyzed using Pearson's product-moment correlation coefficient. The findings indicated a significant improvement in performance, particularly in terms of reduced timing, and demonstrated that yoga practice positively affected cardiovascular efficiency and the benefits of yogic asanas.

Alva, Aparna 2018, This study aimed to compare the effects of yogic asanas and practices on selected psychological, motor ability, and skill-related parameters of women hockey and basketball players from pre-university and university colleges in Mangalore and Mysore. The participants, aged between 16 and 23 years, were required to have played at least at the intercollegiate level. A total of 200 players were included, with 100 players from each sport, randomly assigned to either the experimental group or the control group. The experimental

program lasted six weeks, consisting of 90-minute sessions held three times a week on Monday, Wednesday, and Saturday. Data were analyzed using paired t-tests for within-group comparisons and Mann-Whitney tests to compare the effects between groups, with a significance level set at 5%. The results showed significant improvements in the motor-related variables for both hockey and basketball players, indicating the positive impact of yogic practices on these parameters.

karunanithi,V 2011, This study aimed to examine the effect of yogic practices and stress-reducing exercises on skill-related physical fitness components, psychological variables, and playing ability among school hockey players in Tiruchirapalli district, Tamil Nadu. The sample consisted of 45 players aged 14 to 16 years. Participants were divided into three groups: two experimental groups (one receiving yogic training and the other stress-reducing exercises) and one control group. The training program lasted for 12 weeks, with sessions held six days a week for 30 minutes each. To analyze the data, ANCOVA was used to assess significant differences, and Scheffe's test was applied to identify which group means differed significantly, with a significance level of 0.05. The results indicated that both the yogic practices group and the stress-reducing exercise group showed improvements in the players' physical parameters.

Raval, Nishith R. 2020, This study aimed to investigate the effects of yogic asanas and physical exercise on selected health fitness components, as well as physical and psychological variables. The study focused on secondary school girls from Delhi Public School Bopal, Ahmedabad, with participants aged between 13 and 17 years. A total of 900 students were ranked based on their physical fitness index, and 80 students were selected through randomization. The experimental training program lasted for 12 weeks. To analyze the data, statistical techniques such as t-tests, ANOVA, and ANCOVA were employed, with a significance level set at 0.05. The findings revealed that both yogic asanas and combined practices were more effective in improving physiological, psychological, and health fitness components.

Jayasettiaseelon,E 2021, The researcher aimed to investigate the effects of asana and pranayama yogic practices on selected physiological and psychological variables in hypertensive patients. Ninety pre-hypertensive patients referred to the Advanced Center for Yoga Therapy, Education, and Research (ACYTER) from Jawaharlal Institute of Postgraduate Medical Education & Research (JIPMER), Puducherry, were randomly selected and divided into three

groups of 30 participants each: asana, pranayama, and control. Pre-tests were conducted before the experimental period, followed by post-tests after 12 weeks. Data analysis was performed using ANOVA and ANCOVA. The results indicated that both asana and pranayama practices reduced the heart rate of pre-hypertensive patients. However, only pranayama practice significantly reduced systolic and diastolic blood pressure, while asanas had no such effect.

Karthikeyan, J. 2017, The study aimed to evaluate the effect of yogic practices and stress-reducing exercises on selected psychological variables among hockey players. Forty-five young hockey players aged between 14 and 16 years, selected randomly from the Tirunelveli corporation area, participated in the study. The participants were divided into three groups: a yoga group (n=15), a stress-reducing exercises group (n=15), and a control group (n=15). The training lasted for twelve weeks, with the experimental groups undergoing their respective training programs in addition to their regular routines. Data were analyzed using Paired Sample t-tests and Analysis of Covariance (ANCOVA). The results indicated improvements in all selected variables for the experimental groups, while no changes were observed in the control group. The yoga group showed significant improvements in coordination and reaction time, as well as balance, stress, anxiety, mental depression, and playing ability compared to the control group. The stress-reducing exercise group also showed significant improvements on stress-related variables compared to the control group. The study concluded that both yogic and stress-reducing exercises effectively enhanced the physical, psychological, and playing abilities of hockey players.

Joshi, S. K. (2016) , Many world-class athletes believe that yoga enhances their skills in sports, as it benefits not only the physical but also the mental, emotional, and energy levels. Yoga helps athletes control their emotions and perform better in their respective sports, as emotions significantly impact performance. The autonomic nervous system, which governs emotions, is trained through yogic exercises, helping to reduce emotional disturbances. The present study involved 30 hockey players from Bhagat Singh Stadium, Sirsa. The experimental group practiced yogic asanas, while the control group did not participate in any training. Both groups trained five days a week, and the participants completed a standardized questionnaire developed by Peter C. Terry. The results revealed a significant difference in mood states among the hockey players at the 0.05 significance level.

Deshi, N., & Martin, K. P. (2019) , The study aimed to examine the effect of yogic practices on selected physiological variables in schoolchildren. It was hypothesized that significant differences would be observed in physiological variables due to the impact of yogic practices on pre-adolescents. The study involved 60 secondary school girls from Adarsh Vidyalaya School, Pandavapura, Mandya district, Karnataka, aged between 14 and 16 years. A pre-test post-test random group design was used, with participants randomly assigned to two equal groups: Group A (experimental group) underwent yogic practices, and Group B (control group) did not receive any training. The significance level was set at 0.05. Breath-holding time was assessed using the Flexed Arm Hang test. Data were collected before and after 16 weeks of training. The results indicated that yogic practices had a positive impact on breath-holding time among the schoolchildren.

3. DESCRIPTION OF BROAD AREA

The broad area of this research lies at the intersection of sports science, yoga therapy, and psychophysiological health, particularly in the context of beginner-level hockey training. As sports performance increasingly demands a holistic understanding of both physical and mental conditioning, researchers and practitioners have begun to focus on integrated training methodologies that address not only athletic skills but also emotional balance, cognitive control, and physiological resilience. In this framework, yogic science, with its ancient yet scientifically validated techniques, offers significant potential to support the overall development of athletes.

Sports science, traditionally grounded in biomechanics, exercise physiology, and sports psychology, is now expanding its scope to incorporate complementary practices such as yoga. This evolution is driven by the growing recognition that modern athletes, including team sport players like hockey athletes, face considerable psychological stressors—including performance anxiety, concentration lapses, and burnout—as well as physiological challenges such as fatigue, elevated heart rate, and inefficient recovery mechanisms. These issues are even more pronounced among beginner players, who are still developing their foundational skills and adaptive capacities for competitive sports.

The present study broadly investigates how yogic interventions—comprising structured asana (physical postures) and pranayama (breathing techniques)—can positively influence both the psychological and physiological domains of athlete performance. While existing literature has explored the role of yoga in improving general health and wellness, its focused application in enhancing sports-specific performance parameters, particularly among novice players, remains underexplored. Hockey, being a fast-paced and high-intensity team sport, requires sustained aerobic endurance, muscular coordination, tactical awareness, and strong mental focus—all of which can be positively influenced through yogic practices.

The psychological component of the study focuses on variables such as mental preperation, anxiety and worry management, concentration ability, and relaxation response, which are crucial for optimizing decision-making, team coordination, and game performance. The physiological variables include resting pulse rate, blood pressure, breath-hold time, and cardiovascular efficiency, which are direct indicators of an athlete's physical readiness, endurance, and recovery capabilities. These parameters are not only vital for match performance but also for long-term health and injury prevention.

By integrating traditional yogic wisdom with contemporary scientific inquiry, the study aims to contribute to the growing body of evidence supporting multi-dimensional athlete training approaches. The results could inform coaches, physical educators, and sports scientists on how to design balanced training programs that incorporate yoga for improving overall performance, reducing stress, and enhancing the longevity of athletic careers, especially among youth and emerging players.

4. RESEARCH OBJECTIVES

- To assess the effect of yogic interventions on psychological variables among beginner hockey players.
- To evaluate the impact of yogic interventions on physiological variables among beginner hockey players.
- To examine whether the integration of asana and pranayama practices leads to significant improvement in both psychological well-being and physical health in beginner hockey players.

 To provide a scientific basis for incorporating yogic practices into the regular training regimen of beginner-level hockey athletes for enhanced sports performance and mental resilience.

5. RESEARCH METHODOLOGY

5.1. Selection of Variables

The variables in this study were selected based on insights from previous research highlighting the benefits of yoga on both mental and physical health. Studies have shown that yogic practices enhance psychological traits like concentration and anxiety control, and improve physiological functions such as heart rate and respiratory efficiency. These variables are particularly relevant for beginner athletes adapting to training demands. Hence, they were chosen to assess the holistic impact of yoga on hockey players.

Variable-

Independent Variables

1. **Asanas**: Physical postures that focus on enhancing strength, flexibility, and balance.
2. **Pranayama**: Breathing techniques aimed at regulating the autonomic nervous system and improving respiratory function.
3. **Combined Asanas and Pranayama**: A combination of physical and breath-based exercises to achieve synergistic effects on body and mind.

Dependent Variables

The study focuses on two categories of dependent variables:

1. **Psychological Variables**:
    a. **Mental preparation**: The process of getting the mind ready for optimal performance through focus, confidence, and readiness to face competitive challenges.
    b. **Anxiety and Worry Management**: The reduction in anxiety levels and worry, potentially through yogic breathing techniques.

c. **Concentration Ability**: Improved focus and attention as a result of breath control and mental discipline.

d. **Relaxation Ability**: The capacity to reach a state of mental calm and relaxation through yogic practices.

2. **Physiological Variables**:

a. **Resting Pulse Rate**: Measure of heart rate in a resting state, reflecting cardiovascular health.

b. **Resting Blood Pressure**: Assessment of arterial pressure in a resting state to monitor effects on cardiovascular function.

c. **Maximum Breath-Holding Time**: Duration an individual can hold their breath, indicating lung capacity and respiratory efficiency.

d. **Cardiovascular Efficiency**: Evaluated by fitness tests to reflect improvements in endurance and heart health

5.2. Administration of test

Psychological Assessment Tools:

Psychological data will be collected using the Mental Skills Questionnaire (MSQ) developed by Hardy and Nelson, a standardized and validated tool commonly used in sports psychology to assess key mental skills. The MSQ evaluates various components such as mental preparation, anxiety and worry management, concentration ability, and relaxation ability. This comprehensive assessment enables a detailed analysis of each participant's psychological state both before and after the intervention.

Physiological Measurement Instruments:

- **Resting Pulse Rate**: Measured using a pulse oximeter for accuracy.
- **Resting Blood Pressure**: Measured with a sphygmomanometer to monitor systolic and diastolic pressure.

- **Maximum Breath-Holding Time**: A stopwatch records the time duration participants can comfortably hold their breath after full inspiration.
- **Cardiovascular Efficiency**: Assessed with the **Harvard Step Test**, measuring recovery heart rate post-exercise.

5.3. Research Design

This study utilizes a pre-test-post-test experimental design with four groups to assess the effects of yogic interventions on psychological and physiological variables in beginner hockey players. The four groups are as follows: Group 1 (Asanas-only), Group 2 (Pranayama-only), Group 3 (Combined asanas and pranayama), and Group 4 (Control group with no intervention). A purposive sampling technique will be used to recruit 90 participants (30 per group), ensuring a balanced representation of male and female beginner hockey players, aged 12–18, with limited prior yoga experience. The interventions will be conducted over a period of 8 weeks. Random allocation within the sample will be applied to control biases and ensure comparable baseline characteristics. This design enables a clear comparison of the effects of each intervention on the selected variables.

S.no	Group-1	Group-2	Group-3		Group-4
Yogic intervention	Asanas	Pranayama	Asanas and pranayama		
1.	Surya namashkar	Nadi Shodhana	Suraya namashkar	Nadi shodhan	
2.	Vrikshasana	Bhramari	Vrikshasana	Bhramari	
3.	Tadasana	Anulom vilom	Tadasana	Anulom vilom	Control group
4.	Matsyasana	kapalbhati	Matsyasana	kapalbhati	
5.	Dhanurasana	Sheetali	Dhanurasana	Sheetali	
6.	Bhujangasana	Sheetkari	Bhujangasana	Sheetkari	

Fig.1: table of experimental group

5.4. Data Sources and Evaluation Methods

Primary Source

The primary data will be collected directly from 90 beginner hockey players in the Gwalior district. These participants will be evaluated before and after an 8-week yogic intervention program using standardized tools and protocols. The data will focus on selected psychological variables and physiological variables. All measurements will be taken under controlled conditions to ensure accuracy and consistency.

Secondary Source

Secondary sources will include scholarly journals, peer-reviewed articles, books, dissertations, and existing research studies related to yoga, physical education, sports psychology, and physiology. These sources will be used to support the rationale for selecting specific variables, designing interventions, and understanding the theoretical background and previous research findings relevant to the current study.

Evaluation Method

To analyze the data, the Kolmogorov-Smirnov test will be used to check the normality of the data distribution. Descriptive statistics such as mean and standard deviation will summarize the central tendency and variability of the scores. For comparing the effectiveness of the interventions while controlling for pre-test differences, Univariate Analysis of Covariance (ANCOVA) will be employed. The level of significance will be set at 0.05.

6. EXPECTED OUTCOME

The present study is expected to yield significant insights into the impact of yogic interventions on beginner hockey players. It is anticipated that the groups receiving asanas, pranayama, and especially the combined interventions will show marked improvements in both psychological and physiological variables compared to the control group. Participants in the intervention groups are likely to demonstrate enhanced goal-setting abilities, better management of anxiety and worry, improved concentration, and a higher capacity for relaxation. Similarly, improvements in resting pulse rate, resting blood pressure, breath-holding time, and cardiovascular efficiency are expected as a result of consistent yogic practice over the 8-week period. The study also aims to reveal which type of intervention—asana, pranayama, or their combination—has the most profound effect on the overall well-being and performance readiness of beginner hockey players. These outcomes will contribute to the growing body of evidence

supporting the integration of yoga into athletic training programs and may help coaches and physical educators implement effective holistic strategies for young athletes' development.

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